In the Claims

1.-13. (Cancelled)

14. (New) An immersion nozzle for continuous casting of steel, having an inner hole provided with a swirl vane for generating a swirling flow in molten steel passing therethrough, said inner hole having a wall surface adapted to come into contact with the molten steel during use, at least a part of wall surface being formed of a refractory layer containing CaO and MgO, said refractory layer being prepared by controlling a weight ratio of each of CaO and MgO in said refractory layer, and an apparent porosity.

15. (New) The immersion nozzle as defined in claim 14, wherein said CaO-MgO-containing refractory layer contains a carbonaceous material, wherein a sum of respective chemical composition of MgO and CaO in said refractory layer is 65 mass % or more, and a weight ratio of CaO / MgO is in the range of 0.4 to 2.3.

16. (New) The immersion nozzle as defined in claim 15, wherein said CaO-MgO-containing refractory layer is formed as a tubular-shaped refractory layer having an apparent porosity of 5 to 25 % and a thickness of 3 to 20 mm.

17. (New) The immersion nozzle as defined in claim 15, wherein said carbonaceous material is contained in said CaO-MgO-containing refractory layer in the range of 1 to 35 mass %.

18. (New) The immersion nozzle as defined in claim 15, wherein said CaO-MgO-containing refractory layer contains 5 mass % or less of at least one selected from the group consisting of B_4C, SiC, Al and Si.

19. (New) The immersion nozzle as defined in claim 14, wherein said swirl vane is prepared by twisting a tape-shaped refractory material at an angle of 80 to 180 degrees on the basis of a horizontal plane, in such a manner as to be formed in a spiral shape.

20. (New) The immersion nozzle as defined in claim 14, wherein the wall surface of said inner hole is partially formed with a tier or convex portion, and said swirl vane is fixed to said tier or convex portion.

21. (New) The immersion nozzle as defined in claim 14, which has a gas injection port located on an upstream side relative to said swirl vane.

22. (New) The immersion nozzle as defined in claim 14, wherein said CaO-MgO-containing refractory layer is formed to serve as the entire wall surface of said inner hole including a portion of said wall surface on a downstream side relative to said swirl vane.

23. (New) The immersion nozzle as defined in claim 1, wherein said swirl vane is disposed in said inner hole on an upstream side relative to a position corresponding to a powder line.

24. (New) The immersion nozzle as defined in claim 21, wherein said CaO-MgO-containing refractory layer is formed as a tubular-shaped refractory layer, wherein said immersion nozzle is designed such that gas inert relative to steel is supplied into molten steel passing through said inner hole, from a gas injection port disposed on an upstream side relative to said swirl vane, through a space formed on the side of a back surface of said tubular-shaped refractory layer from a gas feed port formed in the immersion nozzle.

25. (New) A method for continuous casting of steel, using a continuous casting nozzle having an inner hole which is provided with a swirl vane for generating a swirling flow in molten steel passing therethrough, and defined by a wall surface adapted to come into contact with the molten steel during use, at least a part of said wall surface being formed of a tubular-shaped refractory layer, wherein:

said steel is clean steel; and

said refractory layer contains a carbonaceous material, MgO and CaO, wherein a total

amount of MgO and CaO is 65 mass % or more, and a weight ratio of CaO / MgO is in the range of 0.4 to 2.3, said refractory layer having an apparent porosity of 5 to 25 %.

26. (New) The method as defined in claim 25, which including injecting inert gas into molten steel passing through said inner hole, from a gas injection port which is formed in said continuous casting nozzle including an upper nozzle associated with a molten steel vessel, at a position on an upstream side relative to said swirl vane.